

Center for Nanophase Materials Sciences (CNMS)

Facility Introduction

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**Business Opportunity Conference for Major
Construction Work at the Spallation Neutron
Science Project**

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Center for Nanophase Materials Sciences at SNS

- A highly collaborative, multidisciplinary center for nanoscale materials research
- Leverages the unique neutron scattering capabilities of HFIR and SNS
- 80,000 sq. ft. of laboratory/office space with state-of-the-art clean rooms and nanoscience research equipment
- Provides urgently needed facilities for nanofabrication and materials synthesis
- Broadly accessible to universities and industry based on peer review

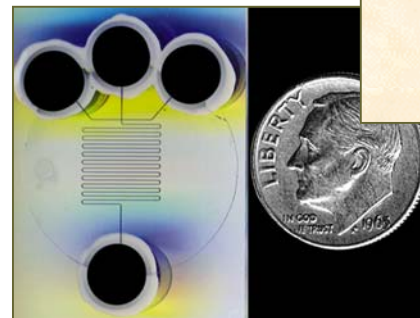
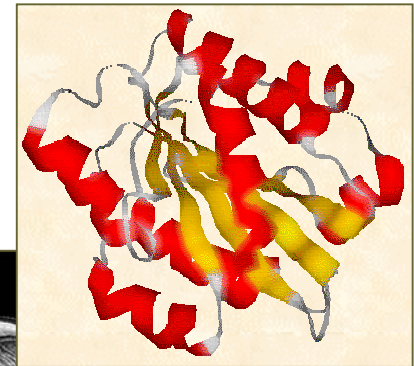
A recent workshop to obtain scientific community input for the Center attracted more than 270 participants from 67 institutions.



The proposed nanosciences center will be located adjacent to SNS and the user-support facilities at the Joint Institute for Neutron Sciences.

Scientific Mission and Potential Impacts

- **Mission:** to understand and control the synthesis and properties of tiny assemblies of atoms, typically 10-100 atoms across
- **Applications:**
 - More powerful computers
 - Understanding gene function
 - Performing fast chemical analyses
 - Medical diagnosis and drug delivery
 - New, more efficient catalysts
 - Ultrastrong materials



Facilities and Equipment

- Large clean room with state-of-the-art nanofabrication equipment
- Electron microscopes, scanning probe microscopes, and other materials characterization equipment (some require low-field, low-vibration environments)
- Capabilities for synthesizing new materials: polymers, electronic and magnetic materials, nanocomposites, biological samples

